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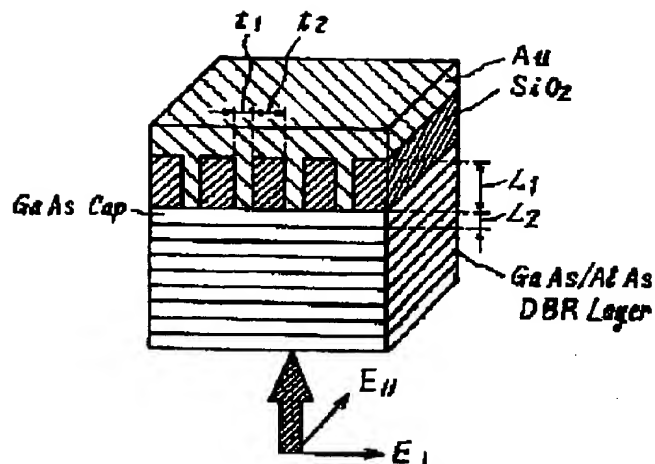
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TITLE : SURFACE EMITTING LASER



ABSTRACT : PURPOSE: To realize polarization stability of a surface emitting laser, by controlling the polarization direction of a surface emitting laser outputting light vertically to the substrate surface, by using the double refraction and the phase difference of a compound reflecting mirror constituted of a metal/dielectric diffraction grating polarizer and a semiconductor multilayered reflecting mirror.

CONSTITUTION: A metal/dielectric diffraction grating polarizer which exhibits double refraction for perpendicularly intersecting polarizations is introduced into the upper part of a semiconductor multilayered film reflecting mirror forming the resonator of a surface emitting laser, and a compound reflecting mirror is formed. Metal, e.g. Au, whose imaginary part of refractive index is large for light wavelength, and dielectric, e.g. SiO₂, which is transparent to light wavelength are used, and a diffraction grating polarizer is formed. As a semiconductor multilayered film reflecting mirror, e.g. a GaAs/AlAs multilayered film reflecting mirror (GaAs/AlAs DBR layer), is used. By considering the double refraction and the phase difference in the compound reflecting mirror, stable polarization dependency for perpendicularly intersecting polarizations can be realized.

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